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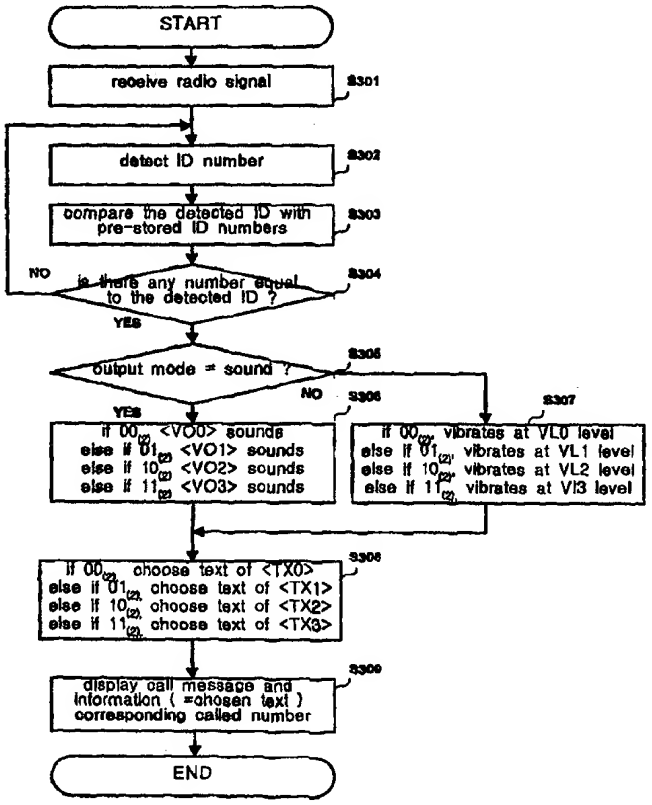
(54) Title: RADIO PAGING SYSTEM AND PAGER TERMINAL USING A PLURALITY OF SUBSCRIBER NUMBERS

(57) Abstract

This invention is related to a radio paging system. In particular, it enables subscribers to use two or more subscriber numbers with single pager. If the radio pager according to the present invention receives a pager message data (S301), a pager identification number is extracted from the pager message data and compared with plural subscriber numbers stored in the pager (S303). If there exists a same identification number in the pager (S304), a pager call information contained in the received pager message data is displayed, where pager call alert signal of pager call sound (S306) or vibration (S307) corresponding to the requested pager identification number is used after evaluation of pager call sound output mode. By displaying both the pager message and information corresponding to the pager identification number (S309), a callee can easily recognize what subscriber number is called.



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DESCRIPTION

RADIO PAGING SYSTEM AND PAGER TERMINAL USING A PLURALITY OF SUBSCRIBER NUMBERS

1. Technical Field

The present invention is in the field of radio paging system and pager terminal which can discriminate pager call information via allocating two or more subscriber numbers to a single pager.

2. Background Art

A general radio pager service which currently uses the radio pager network can be divided into two categories, i.e., pager call service and voice mailing service (VMS).

The pager call service can be explained as follows. A caller makes a phone call to a radio pager subscriber via the telephone network to send pager information, followed by connection to the radio paging apparatus. Then, according to guiding voice messages provided by the radio paging apparatus, the caller selects desired service type and puts a call number, the radio paging apparatus converting the received message into pager message data stream and sending via radio. Finally, there displays the

call number characters sent to a callee on the screen of pager.

Let's consider the voice mailing service. A caller selects voice mailing service according to guiding voice message provided by the radio paging apparatus and records voice message to be sent to a radio pager subscriber. Finishing recording caller's voice message, the radio paging apparatus sends the selected radio pager subscriber a call signal that a voice message has been received, making it possible for a radio pager subscriber to get the recorded voice message through the wired telephone communication network.

The conventional radio pager service has some drawbacks. Firstly, it is not allowed that a radio pager subscriber could have plural subscriber numbers with a single pager, mandating only a single subscriber number on a single pager. Therefore, users who want to have plural subscriber numbers must purchase the same number of pagers, giving users economic burden and much inconvenience. Secondly, a callee can not identify a caller, hence making the callee respond to the caller without having an idea of who's calling. In addition, a callee can not figure out if the received call is emergent or not, making it difficult to promptly respond

to a emergency call.

Nowadays, as one of the solutions for the drawbacks, users use additional numbers specifying the type of call at the end of call number. For example, in case of an emergence call, there comes 8282 (in Korean, the sound of "8282" implies "fast and fast") at the end of call number, i.e., XXX-YYYY-8282, and in case of call between lovers, there comes 1004 (in Korean, the sound of "1004" means "angel") at the end of call number, i.e., XXX-YYYY-1004. But, the method has a demerit that both caller and callee have agreed on the additional numbers and their implications prior to pager call. In addition, even if both caller and callee have agreed on the additional numbers and their implications, it is useless if a caller does not use it when making a call.

As another solution, there is a service called one-number service, which recently comes out as everyone has at least a mobile phone. One number service assigns an unique number to a user who has joined several different communication systems such as mobile phone, wired telephone, and radio pager service, hence making it possible to use all of the different communication systems simultaneously with a single call number. But, the one number service also has a disadvantage that it is

impossible to provide users with information on the caller and degree of emergence.

3. Disclosure of Invention

The objective of the present invention is to provide radio paging system and pager terminal using two or more than subscriber numbers and displaying caller information in addition to pager call information. In particular, the radio paging system in accordance with the present invention includes the assignment of a plurality of subscriber numbers to a single pager terminal and sending a appropriate call signal to callee after checking whether the radio pager called by the caller has joined the multi-numbers service or not upon a call request. When a pager two or more subscriber numbers assigned to in accordance with the present invention receives a call request, it generates different signals such as call sound or vibration corresponding to a subscriber number called among the assigned subscriber numbers. In addition, a pager two or more subscriber numbers assigned to in accordance with the present invention displays information with which the called number can be recognized and caller information when it is available.

Thus, in accordance with the present invention, a telecommunication service is provided to subscribers

based on the assignment of a plurality of subscriber numbers to a single pager. In this manner, subscribers get information for caller and called properties without requiring additional pager and without being confused.

4. Brief Description of Drawings

The accompanying drawings, which are included to provide a further understanding of the invention, illustrate the preferred embodiment of this invention, and together with the description, serve to explain the principles of the present invention.

In the drawings:

FIG. 1 is a typical block diagram of general radio pager network;

FIG. 2 is a block diagram of radio pager apparatus in accordance with the present invention;

FIG. 3 is a conceptual representation of capcode and sub capcode which contain the plural pager identification numbers being an example of the present invention;

FIG. 4 is a service subscription list of a radio paging system in accordance with the present invention;

FIG. 5 is a block diagram of a pager in accordance with the present invention;

FIG. 6 is a flow chart for showing a method of radio pager service in accordance with the present invention;

and

FIG. 7 is a flow chart for showing a method of displaying pager call with a radio paging system in accordance with the present invention.

5. Modes for Carrying out the Invention

The following is a detailed explanation for the embodiment of the radio paging system and radio pager apparatus in accordance with the present invention.

FIG. 1 is a block diagram of typical radio pager network, which comprises wired and wireless telephone communication network 2 connected with multiple telephones 1, wired and wireless computer communication network 4 with a number of computers 5, telephone communication network interface unit 3 and computer communication interface unit 6 corresponding to the communication networks, radio pager call controller 7 which generates a call signal corresponding to a call request received from the interface units, database 8 which stores data needed for generating the call signal, paging station network 9 and radio pager base station which are for sending the call signal to callee via radio.

FIG. 2 is a block diagram of the radio paging system in accordance with the present invention, which is a specific application of the present invention to a call

signal received from telephone communication network (PSTN). The radio paging system in FIG. 2 consists of telephone communication network (PSTN) interface unit 11 transceiving pager call and voice message signals with being connected to wired and wireless telephone communication networks (PSTN) 2, hard disk 14 which has subscriber numbers and associated service information, database 20 which stores voice message and guiding message with digital data format, ADPCM 19 which performs quantizing voice signal into voice digital data, voice conversion unit 18 which transforms the digital data stored in the hard disk into a voice signal, DTMF 12 which interprets and generates DTMF signals received from the telephone communication network interface unit, controller 13 which generates control signals in accordance with the DTMF signal, pager call signal processing unit 15 which generates pager call message in accordance with the control signals, and paging signal transmitter 16 which sends the generated pager data via radio.

FIGS 3, 4 and 6 explain in more detail pager call method of the radio paging system shown in the FIGS. 1 and 2. The identification number of a pager using a plurality of subscriber numbers comprises of N bit

capcode, which addresses pager uniquely and is usually six to eight digits in length, and 2 bit sub-capcode as shown in FIG. 3. The identification number consists of the combination of the same capcode and sub-capcode assigned differently according to subscriber numbers, and of data given differently according to a subscriber number. For example, let's consider a case that identification number consists of the combination of the same capcode and sub-capcode assigned differently according to subscriber numbers. By assigning the same capcode and 2 bit sub-capcode such as 00, 01, 10, and 11, a subscriber who has joined "plural subscriber number service" (referred as "multi-number service" hereinafter) have four different subscriber numbers such as 015-AAA-BBBB, 015-BBB-CCCC, 015-CCC-DDDD, and 015-DDD-EEEE.

Meanwhile, the brief explanation for the radio paging system shown in FIG. 2 is as follows. The DTMF unit detects DTMF signal out of a call signal received from telephone communication network interface unit 11 linked with telephone exchange network 2, thus generating dialing codes. The controller 13 decides if the requested service is pager call or voice message according to the generated dialing codes and generates control signals

corresponding to the requested service operation. In other words, when a call is received, the controller 13 extracts guiding messages stored in the database 20, which is transformed to a voice signal via voice conversion unit 18. The voice guiding message generated in the manner, that is, "1 is pager call, 2 is voice message recording, and 3 is voice message confirmation" is out put to a caller via the telephone communication network interface unit. So, according to the voice guiding messages, a caller selects a desired service by dialing 1 for pager call service, or 2 and 3 for voice mailing services.

If a caller request is 1, then the controller 13 generates guiding message of "please, input call number you want to send" by controlling the database 20 and voice conversion unit 18, and stores temporarily the caller's telephone number in a storage device 17. At the same time, the controller 13 searches service subscribing information of the requested subscriber number in the hard disk 14 to find what kind of services a callee has joined. If the callee has joined multi-number service, i.e., two or more subscriber numbers are assigned to a pager of the callee, call processing unit 15 generates pager message data which comprises of caller's pager call

information stored temporarily in the storage device 17 and requested callee's subscriber number, i.e., called number. All of plural subscriber numbers assigned to the requested pager are extracted and examined if the extracted plural subscriber numbers exist in the batch data stream which will be used for call processing. If the extracted plural subscribers do not exist in the batch data stream, the generated pager message data are transplanted into the batch data stream. If the extracted plural subscribers exist in the batch data stream, the generated pager message data are transplanted into a different batch data stream such that the generated pager message data can be transmitted with a finite time delay, or are re-transplanted into the batch data stream distinguishably.

By transmitting the batch data stream which is re-transplanted such that the pager message data can be distinguished, or the different batch data stream transplanted with the pager message data, as radio paging signal via the paging signal transmitter 16, a callee can receive both information corresponding to the pager identification number and pager call information.

If a caller request is 2, which is voice message recording service, then the controller 13 generates

guiding message of "please, record your voice message" by controlling the database 20 and voice conversion unit 18, and stores the received voice messages which have been quantized by the quantization unit 19 in the database. At the same time, the controller 13 searches service subscribing information of the requested subscriber number in the hard disk 14 to find what kind of service a callee has joined. If the callee has joined multi-number service, the received voice message is stored in the database with information corresponding to the requested subscriber number. If there are messages recorded previously, the received message is stored separately in the database 20, whereby we can figure out each message stored in the database upon the request of voice message confirmation. In other words, searching is performed to find if there exists a voice message associated with plural subscriber numbers in the database 20. If there exists a stored voice message, the information corresponding to a subscriber number is saved together with the received voice message. Therefore, it is possible to transmit both the stored voice message and guiding message corresponding to a subscriber number upon the request of voice message confirmation.

Meanwhile, call processing unit 15 generates pager

message data which comprises a signal telling the reception of voice message and information corresponding to the requested subscriber number. The pager message is transmitted as paging signal via paging signal transmitter 16 and is received by callee's pager. According to the procedure, a callee gets both paging signal notifying that there is a received voice message and information corresponding to pager identification number.

If a caller request is 3, which is voice message confirmation service, then the controller 13 generates guiding message of "please, input your password" by controlling the database 20 and voice conversion unit 18. When the received password is right, the controller 13 searches service subscribing information of the requested subscriber number in the hard disk 14 to find what kind of services a callee has joined. If the callee has joined multi-number service, the stored voice message and guiding message corresponding to a subscriber number are taken out from the database 20, being converted to a voice signal via voice conversion unit and transmitted to a caller by way of telephone communication network interface unit 11.

For example, we can listen "the voice message stored in

015-AAA-BBBB is", "Please hurry ----", "the voice message stored in 015-BBB-CCCC is", "I'm Chanho ----". On the other hand, if a unique message is assigned to a subscriber number, that is to say, suppose that 015-AAA-BBBB is assigned to 'home' and 015-BBB-CCCC is assigned to 'office', we can listen "from home", "Please back home in ----", "from office", "Why are you ----".

The operation of the present invention is explained as follows using FIG. 6.

Firstly, let's consider the pager call service. If a subscriber number which is contained in the signal received from telephone communication network (S210) corresponds to a subscriber number (S202) which is provided by a pager, searching subscriber service list in the database is performed to find if the subscriber has joined multi-number service (S203). If the subscriber has joined multi-number service (S204), a pager message data is generated by using a signal received from the telephone communication network, and is examined to find if the pager identification numbers corresponding to the plural subscriber numbers exist in the batch data stream made for pager call (S208). If the batch data stream exists to be transmitted, the pager message data are transplanted into a new batch data stream such that the

pager message can be transmitted with a finite time delay, or the existing batch data stream is recomposed to encompass the pager message distinguishably (S209). If there is no data stream coinciding with the received pager identification number, the generated pager message data are transplanted into the batch data stream directly.

By transmitting the batch data stream (S216) which is re-composed such that the pager message data can be distinguished, or the different batch data stream transplanted with the pager message data, a callee can receive both information corresponding to the pager identification number and pager call information.

Now, let's consider the voice recording procedures of voice mailing service. If a subscriber number which is contained in the signal received from telephone communication network (S201) corresponds to a subscriber number (S202) which is provided by a pager, a guiding message of "push the button 2 for voice message recording", which is stored in database, is output as voice signal. Then, the received voice signal is converted to voice message data stream and stored in database with the associated subscriber number. At this time, searching subscriber service list in hard disk is performed to find if the subscriber has joined multi-

number service (S203). If the subscriber has joined multi-number service (S204), the received voice message are detected (S213) and information corresponding to the called subscriber number are stored in association with the detected voice message in database (S214).

By transmitting the pager call information that there are stored voice message and information corresponding to the requested subscriber (S215), a callee can receive both information corresponding to the pager identification number and pager call information that there is stored voice message.

Now, let's consider the voice message confirming procedures of voice mailing service. If a subscriber number which is contained in the signal received from telephone communication network (S201) corresponds to a subscriber number (S202) which is provided by a pager, a guiding message of "push the button 3 for voice message confirmation", which is stored in database, is output as voice signal. If there is a request for voice message confirmation service, a guiding message of "enter your password" is sent as voice signal. If the entered password is right, the voice message stored in database with the associated subscriber number is converted to voice signal. At this time, searching subscriber service

list in hard disk is performed to find if the subscriber has joined multi subscriber-number service (S203). If the subscriber has joined multi subscriber-number service (S204), the voice message stored in the database and information corresponding to the requested subscriber number are taken out simultaneously (S211).

By transmitting the extracted voice message and guiding message via voice signal form (S212), a callee can listen to both voice message and guiding message related to plural subscriber numbers which is stored together with associated voice message.

Therefore, in accordance with the radio pager method, it is possible to provide new service that both received pager call information and additional information corresponding to the requested subscriber number can be simultaneously sent to a callee in case that the requested subscriber number corresponds to that of pager using two or more subscriber numbers. In addition, as for services related to voice message, a callee can receive the stored voice message with additional guiding message corresponding to the requested subscriber number.

FIG. 5 is a block diagram of the radio paging system using the present invention, which comprises filtering unit 101 filtering the signal received from antenna;

demodulation unit 102 demodulating the filtered signal; decode 103 decoding the demodulated signal to generate original data; microcomputer 104 detecting pager identification number from the decoded data, and controlling pager call response; call alerting unit 106 generating call sound or vibration according to the microcomputer control; display unit 105 displaying both pager call information and information corresponding to pager identification number with character format; memory 107 storing data needed for the pager call response; key pad unit 108 including keys for responding and confirming to pager call alert and characters displayed in the display unit 105; and power supply unit 109 providing power source needed in all of the components.

The operation of the radio paging system is explained in detail using FIG. 7, which depicts a flowchart for pager call display method of pager according to the present invention. A pager receives (S301) a pager message data of batch data stream, which is transmitted via radio from previously mentioned radio paging system. A pager identification number is extracted from the pager message data and compared with plural subscriber numbers stored in the pager (S303). If there exists a identification number in the pager (S304), which

coincides with that of batch data stream in the received pager message data, a pager call information contained in the received pager message data is displayed, where pager call alert signal of pager call sound (S306) or vibration (S307) corresponding to the requested pager identification number is used after evaluation of pager call sound output mode.

By displaying both the pager message and information corresponding to the pager identification number (S309), a callee can easily recognize what subscriber number is called by the requested pager call.

Let's consider pager call alert output mode using examples. Suppose that pager call sound is selected as pager call alert output mode. If 2-digit sub capcode data of a pager identification number is $01_{(2)}$ in binary value, "ding-dong-daeng" sounds, which is a stored pager call sound <V01> associated with the requested pager identification number. If the sub capcode is $10_{(2)}$, "Do-Re-Mi" sounds, which is a stored pager call sound <V02> associated with the requested pager identification number.

Next, in case of vibration alert mode, a callee can receive information about pager message data using vibration level corresponding to the pager identification number. Specifically, if sub capcode data of a pager

identification number is $01_{(2)}$, the vibration level is two fourths of the maximum vibration level, which is a stored vibration level VL1 associated with the requested pager identification number. If the sub capcode is $10_{(2)}$, the vibration level is three fourths of the maximum vibration level, which is a stored vibration level VL2 associated with the requested pager identification number. Using the above mentioned method, a subscriber can recognize the requested subscriber number via pager call sound or vibration level. In addition to pager call sound and vibration level, vibration period can be also used for a subscriber's recognition of the requested subscriber number.

Let's explain a case of displaying information corresponding to the requested radio pager terminal identification number via character form. Specifically, if sub capcode data of a pager identification number is $01_{(2)}$, pager call characters <TX1> of "home" display, which are stored pager call characters associated with the requested pager identification number. If the sub capcode is $10_{(2)}$, pager call characters <TX2> of "office" display, which are stored pager call characters associated with the requested pager identification number.

The above mentioned pager call display methods in

accordance with the present invention include a simultaneous or separate usage of pager call alert signal (pager call sound/ vibration) and character display.

So, the pager in accordance with the present invention receives the pager message data transmitted via radio from radio paging system, and informs a callee of receiving a pager message via pager call sound or vibration level corresponding to the requested pager identification number. Then, it gives a callee both pager message and pager character corresponding to the requested pager identification number, hence making it possible to use multi-number service without conflict and confusion.

The foregoing is provided only for the purpose of illustration and explanation of the preferred embodiments of the present invention, so changes, variations and modifications may be made without departing from the spirit and scope of the invention.

C L A I M S

1. A pager using a plurality of subscriber numbers, comprising:

a first means for demodulating a received signal via radio to digital data;

a second means for extracting a pager identification number from the demodulated data and searching for the extracted number among a plurality of pre-stored pager identification numbers; and

a third means for outputting pager call information contained in the demodulated data and information corresponding to the identification number discovered by said second means.

2. A pager according to claim 1, wherein the pager identification numbers comprise capcodes assigned differently according to subscriber numbers.

3. A pager according to claim 1, wherein the pager identification numbers comprise identical capcode and sub capcodes assigned differently according to subscriber numbers.

4. A pager according to claim 1, wherein said third means outputs different pager call sounds according to the discovered pager identification number.

5. A pager according to claim 1, wherein said third means vibrates differently according to the discovered pager identification number.

6. A pager using a plurality of subscriber numbers, comprising:

a first means for demodulating a received signal via radio to digital data;

a second means for extracting a pager identification number from the demodulated data and checking whether the extracted pager identification number coincides with any identification number among a plurality of pre-stored pager identification numbers or not;

a third means for detecting a subscriber identification information contained in the demodulated data according to the checked result; and

a fourth means for outputting pager call information contained in the demodulated data and information corresponding to the detected subscriber identification number.

7. A pager according to claim 6, wherein the pager identification number is capcode and the subscriber identification information is sub capcode assigned differently according to subscriber numbers.

8. A pager according to claim 6, wherein the pager

identification number is capcode and the subscriber identification information is data assigned differently according to subscriber numbers.

9. A pager according to claim 6, wherein the pager identification number consists of capcode and sub capcode, and the subscriber identification information is data assigned differently according to subscriber numbers.

10. A pager according to claim 6, wherein said fourth means uses different pager call sounds according to the detected subscriber identification information.

11. A pager according to claim 6, wherein said fourth means vibrates differently according to the detected subscriber identification information.

12. A paging method using a plurality of subscriber numbers, comprising the following steps of:

(1) converting a signal received from telephone communication network or computer communication network into data;

(2) checking whether a subscriber number contained in the converted data corresponds to a pager using a plurality of subscriber numbers or not;

(3) generating pager call message data including information corresponding to the plurality of subscriber numbers according to the checked result;

(4) transplanting the generated pager call message data in batch data stream for pager call; and

(5) transmitting the batch data stream via radio.

13. A paging method according to claim 12, wherein said step (4) comprises the following steps of:

reading out all of the pager identification numbers assigned to the pager corresponding to the subscriber number contained in the converted data;

checking if the read pager identification numbers exist in first batch data stream for pager call; and

transplanting the generated pager call message data into the first batch data stream in case of existence, and transplanting the generated pager call message data into second batch data stream to be transmitted a while after transmission of the first batch data stream in case of non-existence.

14. A voice mailing method using a plurality of subscriber numbers, comprising the following steps of:

(1) converting a signal received from telephone communication network or computer communication network into data;

(2) checking whether a subscriber number contained in the converted data corresponds to a pager using a plurality of subscriber numbers or not;

(3) transmitting a message corresponding to the subscriber number to the telephone communication network or computer communication network according to the checked result; and

(4) storing both a received voice message and information corresponding to the subscriber number in a part of database, the part of database being separated from a storage area for voice message to single number subscriber.

15. A voice mailing method according to claim 14, wherein said step (4) stores the information corresponding to the subscriber number in the part of database with association with the received voice message if the subscriber number corresponds to a pager using a plurality of subscriber numbers.

16. A voice mailing method according to claim 14, further comprising the step of transmitting via radio a signal to inform a callee that a voice message has been arrived newly.

17. A voice mailing method using a plurality of subscriber numbers, comprising the following steps of:

(1) converting a signal received from telephone communication network or computer communication network into data;

(2) checking whether a subscriber number contained in the converted data corresponds to a pager using a plurality of subscriber numbers or not; and

(3) retrieving both voice messages stored in connection with the plurality of subscriber numbers and information corresponding to the subscriber numbers from database, the information being stored with association of the voice messages.

18. A voice mailing method according to claim 17, further comprising the step of transmitting via voice both the retrieved voice messages and the information corresponding to the subscriber numbers.

19. A radio paging system using a plurality of subscriber numbers service, comprising:

a connection means for connecting to telephone communication network and/or computer communication network;

a paging controller for checking whether a subscriber number contained in a signal received from the connection means corresponds to a pager terminal using a plurality of subscriber numbers, detecting a pager identification number corresponding to the subscriber number contained in the received signal, and generating pager call message data including the detected pager identification number and

pager call information contained in the received signal;

a radio transmission means for transmitting via radio the generated pager call message data; and

a lot of pager terminals, each terminal detecting the pager identification number contained in the transmitted pager call message data and outputting the pager call information together with information corresponding to the pager identification number being equal to one of pre-stored pager identification numbers.

20. A radio paging system using a plurality of subscriber numbers, comprising:

a connection means for connecting to telephone communication network and/or computer communication network;

a radio paging controller for checking whether a subscriber number contained in a signal received from the connection means corresponds to a pager terminal using a plurality of subscriber numbers, detecting a pager identification number corresponding to the subscriber number contained in the received signal, and generating pager call message data including the detected pager identification number, pager call information contained in the received signal, and additional information corresponding to the subscriber number;

a radio transmission means for transmitting via radio the generated pager call message data; and

a lot of pager terminals, each terminal detecting a pager identification number contained in the transmitted pager call message data and outputting the pager call information together with the additional information if the detected pager identification number coincides with one of pre-stored pager identification numbers.

FIG. 1

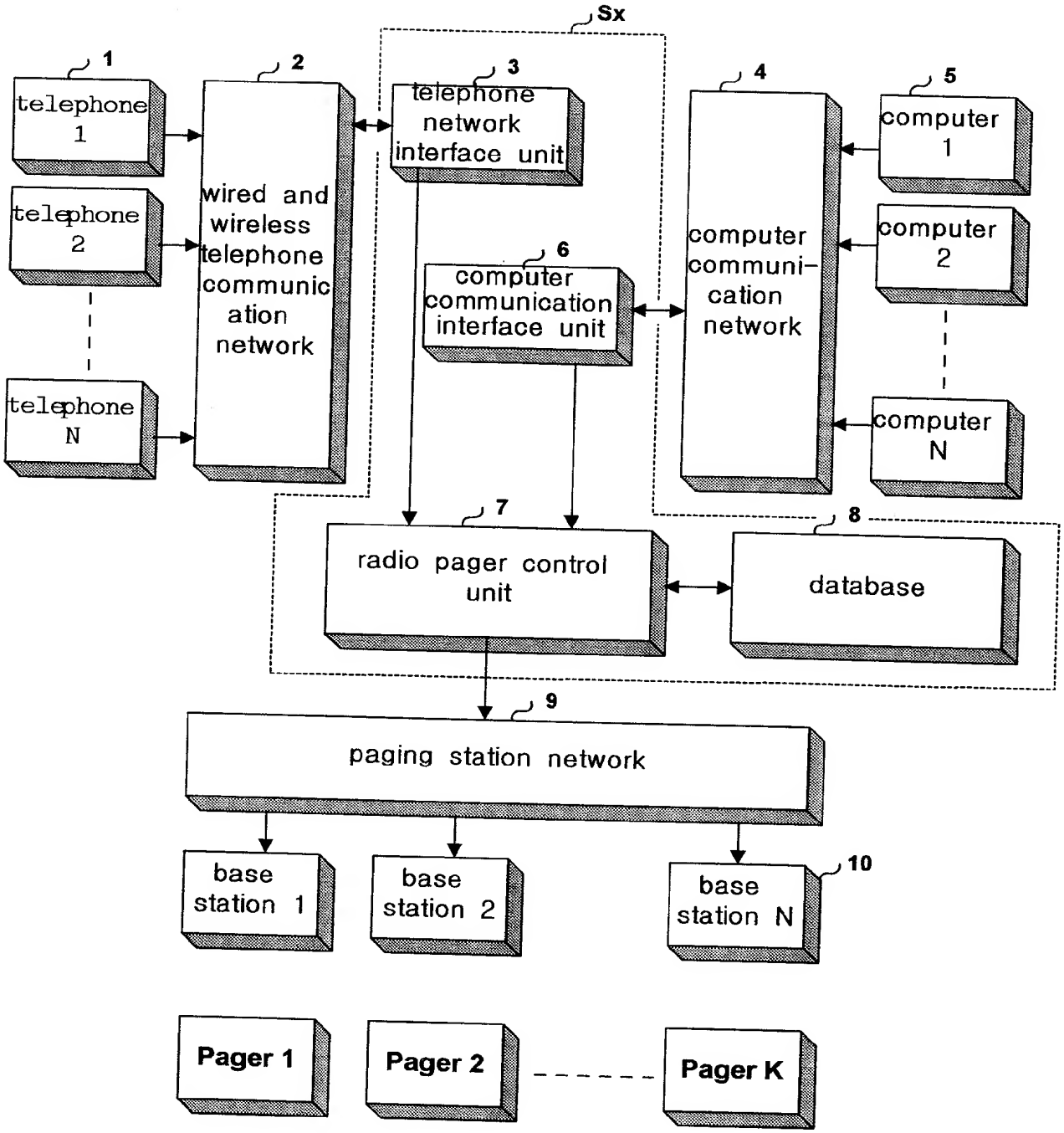

Sx
1
telephone 1
telephone 2
telephone N
2
wired and wireless telephone communication network
3
telephone network interface unit
6
computer communication interface unit
4
computer communi-cation network
5
computer 1
computer 2
computer N
7
radio pager control unit
8
database
9
paging station network
base station 1
base station 2
base station N
10
Pager 1
Pager 2
Pager K

FIG. 2

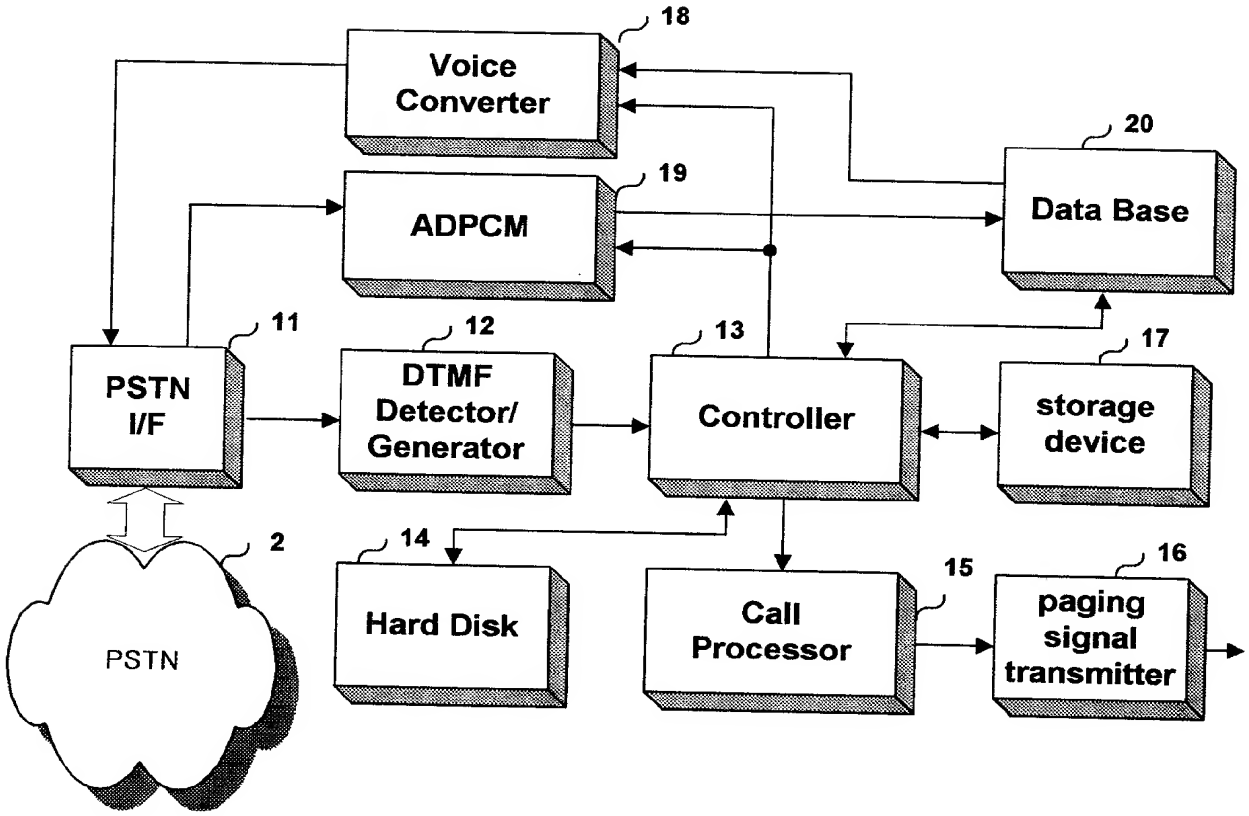

18
Voice Converter
20
Data Base
19
ADPCM
11
12
13
17
PSTN I/F
DTMF Detector/ Generator
Controller
storage device
2
14
15
16
PSTN
Hard Disk
Call Processor
paging signal transmitter

FIG. 3

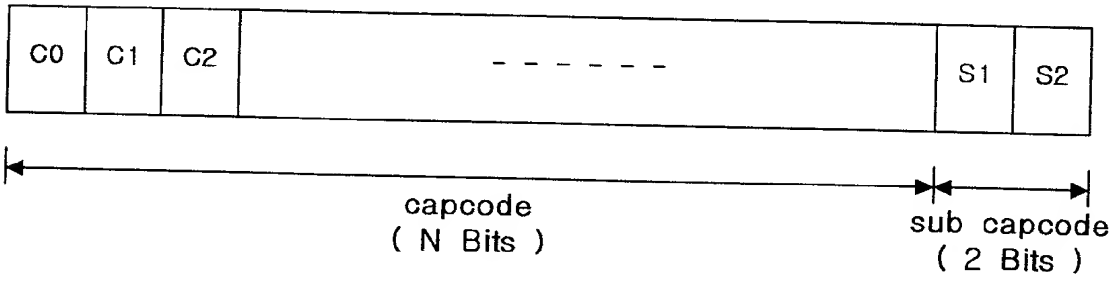

C0
C1
C2
- - - - - - -
S1
S2
capcode
(N Bits)
sub capcode
(2 Bits)

FIG. 4

	subscriber number	registered service list	code for registered services
1	012-219-01XX	voice mailing service (VMS) (1)	1
2	012-319-83XX	VMS (1), multi-number service(2)	3
3	012-8618-39XX	character pager call (4), VMS (1), multi-number service (2)	7
4	012-8479-95XX	character pager call (4), multi-number service (2)	6
⋮	⋮	⋮	⋮
N	012-8394-55XX	VMS (1), multi-number service (2)	3

FIG. 5

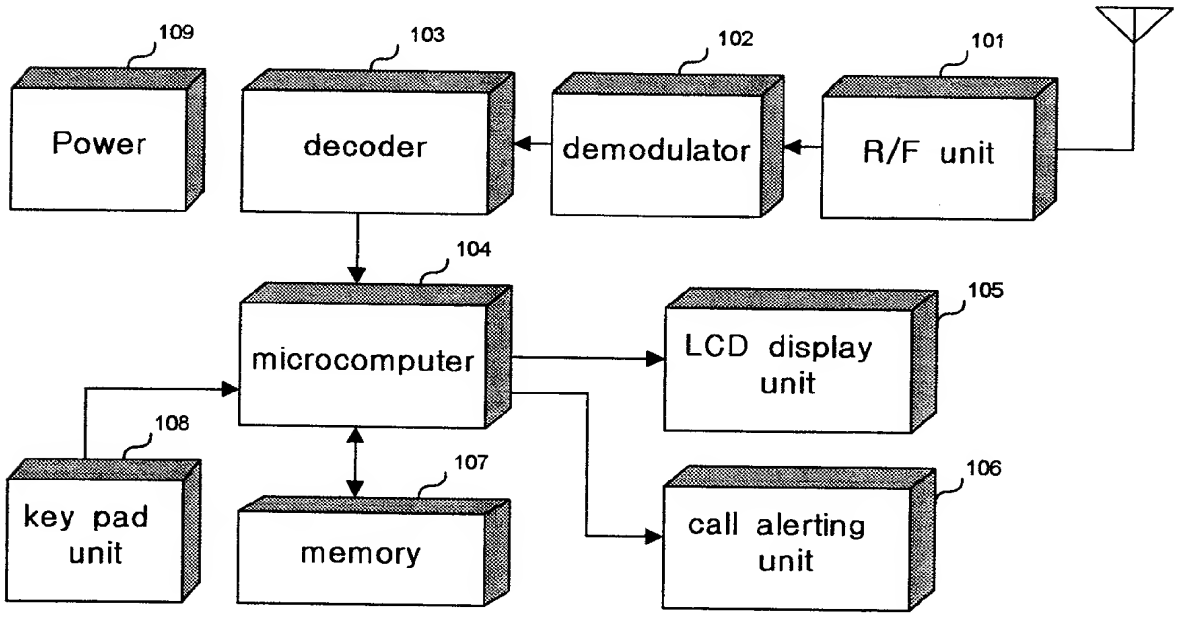


FIG. 6

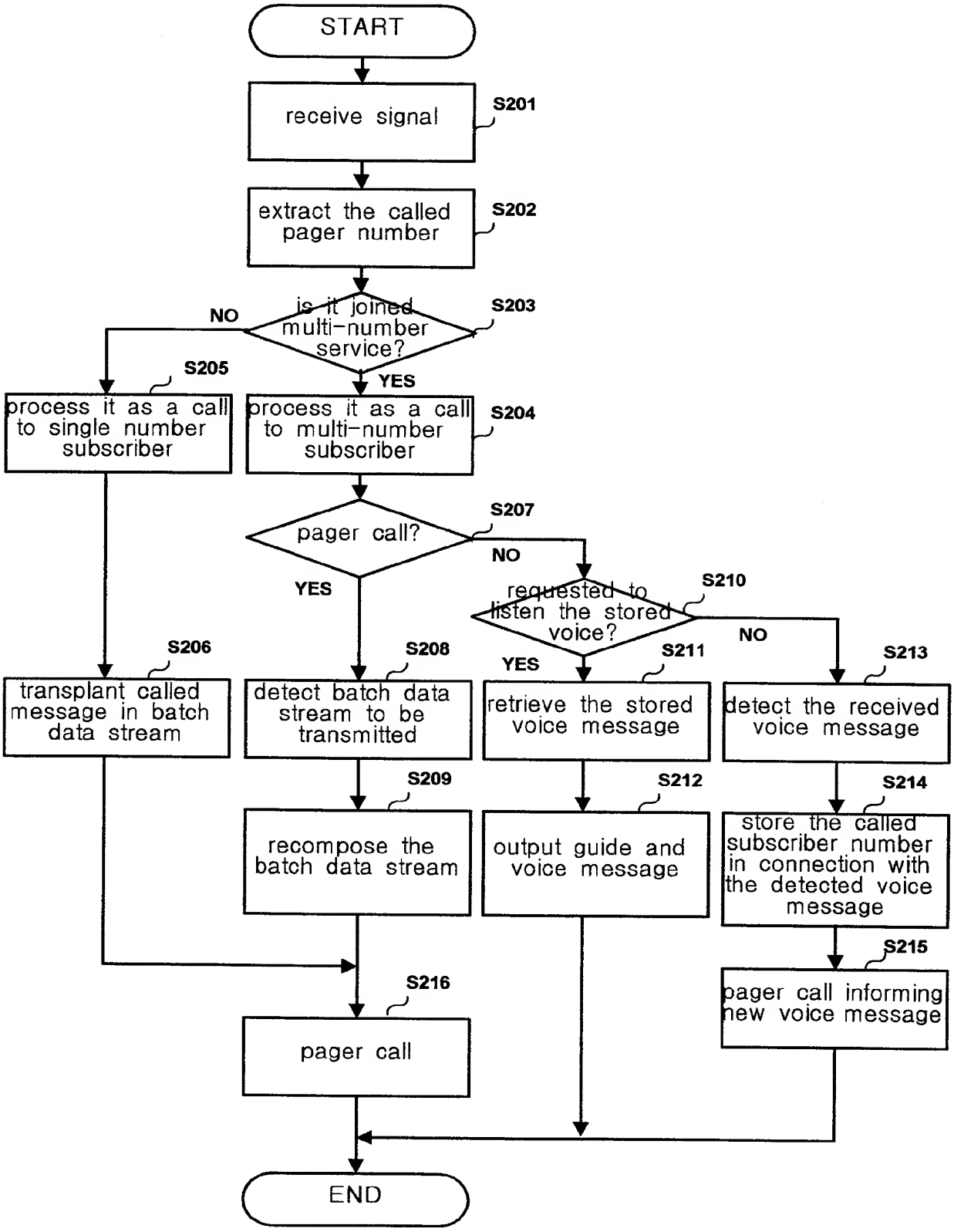
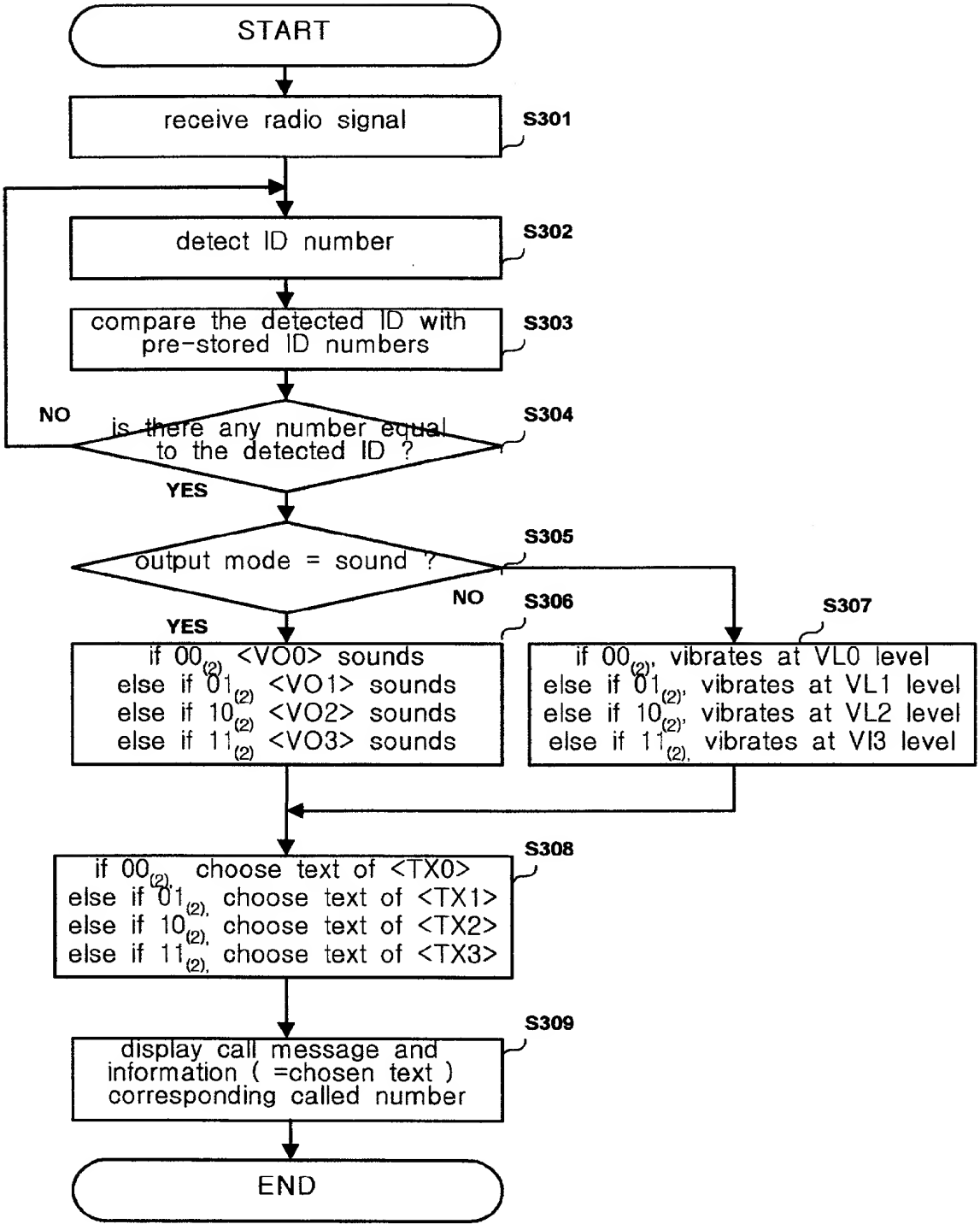

START
receive signal
S201
extract the called pager number
S202
is it joined multi-number service?
S203
NO
YES
process it as a call to single number subscriber
S205
process it as a call to multi-number subscriber
S204
pager call?
S207
NO
YES
requested to listen the stored voice?
S210
NO
YES
transplant called message in batch data stream
S206
detect batch data stream to be transmitted
S208
retrieve the stored voice message
S211
detect the received voice message
S213
recompose the batch data stream
S209
output guide and voice message
S212
store the called subscriber number in connection with the detected voice message
S214
pager call informing new voice message
S215
pager call
S216
END

FIG. 7


START
receive radio signal
S301
detect ID number
S302
compare the detected ID with pre-stored ID numbers
S303
NO
is there any number equal to the detected ID ?
S304
YES
output mode = sound ?
S305
NO
YES
S306
S307
if $00_{(2)}$ <VO0> sounds
else if $01_{(2)}$ <VO1> sounds
else if $10_{(2)}$ <VO2> sounds
else if $11_{(2)}$ <VO3> sounds
if $00_{(2)}$, vibrates at VL0 level
else if $01_{(2)}$, vibrates at VL1 level
else if $10_{(2)}$, vibrates at VL2 level
else if $11_{(2)}$, vibrates at VI3 level
S308
if $00_{(2)}$, choose text of <TX0>
else if $01_{(2)}$, choose text of <TX1>
else if $10_{(2)}$, choose text of <TX2>
else if $11_{(2)}$, choose text of <TX3>
S309
display call message and information (=chosen text) corresponding called number
END